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Features

- Solid state, high reliability
- 316L stainless steel, ISO sensor design
- ±0.5% static accuracy
- Temperature compensated 32°F to 158°F (0°C to 70°C)
- High sensitivity, 100 mV FSO with 1.0 mA excitation
- Linearity 0.1% FSO typical
- Four standard ranges: 0 to 15 psig (0 to 1 bar), 0 to 250 psig (0 to 17 bar) available in gauge or absolute
- Voltage driven ranges: 15, 30, 50, 100, 200 and 300 psi (1, 2, 3, 7, 14 and 20 bar) gauge and absolute
- Standard configurations include:
  - 1/2 in-20 UNF threaded male port with 1.0 in (25 mm) flange
  - 0.74 in (18.8 mm) diameter x 0.28 in (7 mm) long cylinder with o-ring seals
  - 1/4 in-18 NPT male port with 7/8 in (22 mm) flange
  - 1/8 in-27 NPT male port with 7/8 in (22 mm) flange
- Custom configurations and other pressure ranges available. Please consult the factory.

Applications

- Process control systems
- Hydraulic systems and valves
- Biomedical instruments
- Refrigeration and HVAC controls
- Appliances and consumer electronics
- Ship and marine systems
- Aircraft and avionic systems

NPI-19 Series

NovaSensor Medium Pressure Sensors

NPI-19 Series is a NovaSensor product. NovaSensor has joined other GE high-technology sensing businesses under a new name—GE Industrial, Sensing.

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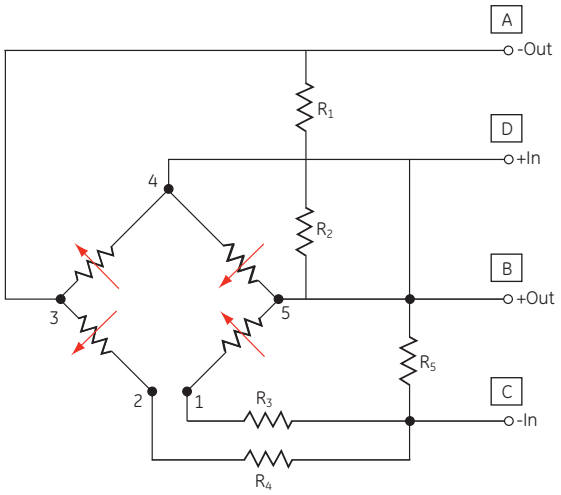
Current Driven Medium Pressure, Media Isolated Pressure Sensor

The NovaSensor NPI Series incorporates state-of-the-art IsoSensor technology, which gives the OEM user the best in price and performance. They are designed to operate in hostile environments and yet give the outstanding sensitivity, linearity, and hysteresis of a silicon sensor. The piezoresistive sensor chip is housed in a fluid filled cylindrical cavity and isolated from measured media by a stainless steel diaphragm and body. As with all NovaSensor silicon sensors, the NPI Series employs SenStable® processing technology, providing excellent output stability.

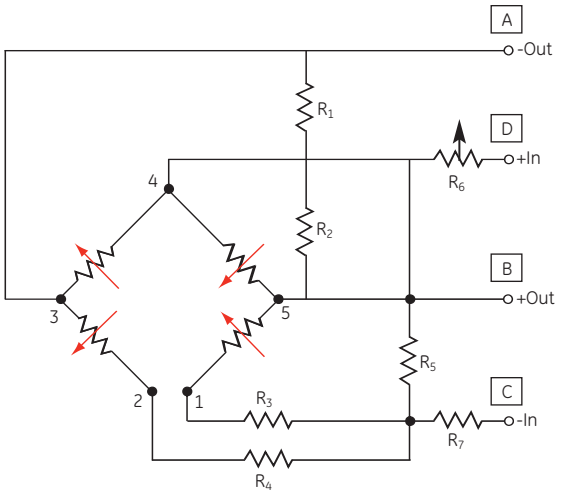
The modular design allows for a variety of pressure port modules, which are hermetically welded to the sensor header module. Standard types A, B, H, and J are shown inside.

For compensation of temperature effects, a complete resistor network is supplied on a hybrid ceramic substrate. The IsoSensor design minimizes temperature errors to provide a maximum offset error of 0.75% FSO over the 32°F to 158°F (0°C to 70°C) compensated range.



Pin number 4 connected to chip substrate.

Constant current schematic diagram



Constant voltage schematic diagram

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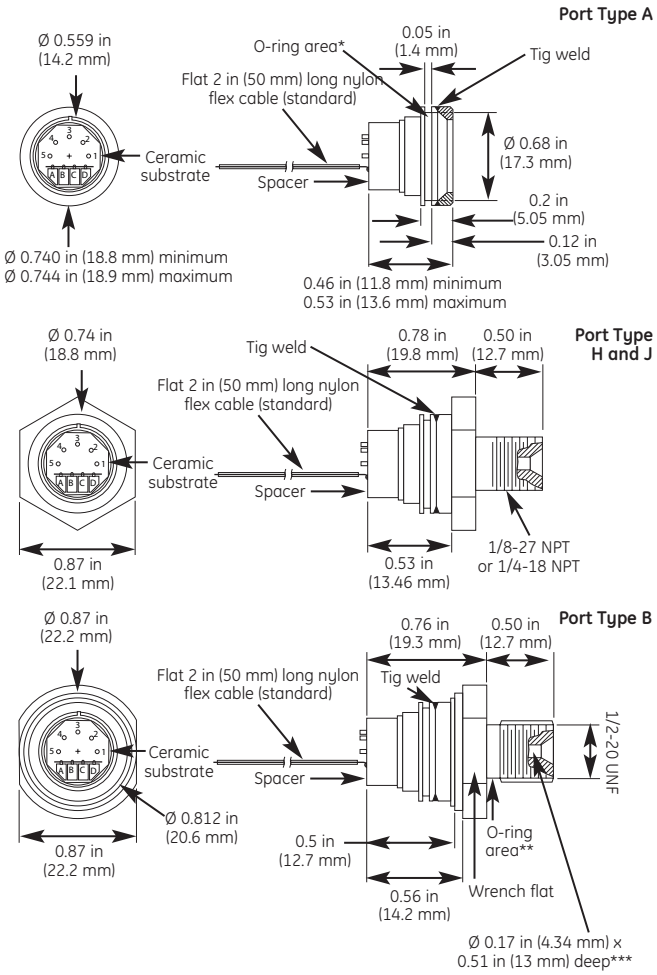
NPI-19 Series Specifications

Parameter	Value	Notes
General[8]		
Pressure Range		
NPI-19	0 to 100 kPa	0 to 15 psi (0 to 1 bar)
	0 to 200 kPa	0 to 30 psi (0 to 2.07 bar)
	0 to 700 kPa	0 to 100 psi (0 to 6.89 bar)
	0 to 1,700 kPa	0 to 250 psi (0 to 17.24 bar)
NPI-19VC	0 to 103.4 kPa	0 to 15 psi (0 to 1 bar)
	0 to 206.8 kPa	0 to 30 psi (0 to 2.07 bar)
	0 to 344.7 kPa	0 to 50 psi (0 to 3.44 bar)
	0 to 689.4 kPa	0 to 100 psi (0 to 6.89 bar)
	0 to 1379 kPa	0 to 200 psi (0 to 14 bar)
	0 to 2068 kPa	0 to 300 psi (0 to 21 bar)
Maximum Overpressure	2X	rated pressure
Electrical @ 77°F (25°C) unless otherwise stated		
Input Excitation		
NPI-19	1.0 mA	1.5mA maximum
NPI-19VC	10 VDC	1.5 VDC maximum
Insulation Resistance	10^8 Ω	@ 50 VDC
Input Impedance		
NPI-19	4,000 Ω	± 20%
NPI-19VC	4,000 Ω	
Output Impedance	5,000 Ω	± 20%
Bridge Impedance	5,000 Ω	± 20%
Environmental		
Temperature Range		
Operating[6]	–40°F to 257°F	(–40°C to 125°C)
Compensation	32°F to 158°F	(0°C to 70°C)
	10 gRMS	20 to 2000 Hz
Shock	100 g	11 milliseconds
Life (Dynamic Pressure Cycle)	1 x 10^6 cycles	
Mechanical[1]		
Weight	0.02 lb (10 g)	NPI-19A-XXX
	0.1 lb (45 g)	NPI-19B/H/J-XXX
Media Compatibility	All corrosive media compatible with 316L stainless steel	
Case and Diaphragm Material	316L stainless steel	
Recommended O-Ring		
Type A	0.66 in x 0.039 diameter	(16.76 mm x 1 mm)
Type B	2-013 per ISO 3601/1	



**Uses o-ring 0.66 in ID x 0.039 in (16076 mm x 1 mm) cross section.*
***Uses 2-013 per ISO 360 1/1 o-ring for outside seal.*
****Uses 2-003 per ISO 360 1/1 o-ring for inside seal.*

NPI-19VC Series dimensions

Parameter	Units	Minimum	Typical	Maximum	Notes
Performance Parameters[5], Compensated[1]					
Offset	mV	–2	1	2	
FSO Output					
NPI-19	mV	70	100	130	2
NPI-19VC	mV	99	100	101	2
Linearity	%FSO	–0.25	0.1	0.25	3
Hysteresis and Repeatability	%FSO	–0.05	0.01	0.05	
Thermal Accuracy of Offset					
NPI-19	%FSO	–0.75	0.2	0.75	4
NPI-19VC	%FSO	–1.0	0.2	1.0	4
Thermal Accuracy of FSO	%FSO	–0.75	0.2	0.75	4
Thermal Hysteresis	%FSO	–0.2	0.1	0.2	5
Short-Term Stability of Offset	µV/V		5		6
Short-Term Stability of FSO	µV/V		5		6
Long-Term Stability of Offset	%FSO		0.1		7
Long-Term Stability of FSO	%FSO		0.1		7

1. *Performance with offset, thermal accuracy of offset, and thermal accuracy of FSO compensation resistors.*
2. *FSO with 1.0 mA input excitation, 10 VDC for NPI-19VC.*
3. *Linearity by best fit straight line.*
4. *32°F to 158°F (0°C to 70°C) with reference to 77°F (25°C).*
5. *32°F to 158°F (0 to 70°C), by design.*
6. *Normalized offset/bridge voltage—100 hours, typical value, not tested in production.*
7. *1 year, typical value, not tested in production.*
8. *Consult factory for vacuum applications.*

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NPI-19 Series Specifications

Ordering Information

The code number to be ordered may be specified as follows:

NPI-19 **NovaSensor Pressure Type (ISO Sensor)**

Code	Pressure Port Type
A	No port, o-ring seal
B	1/2-20 UNF
H	1/4-18 NPT
J	1/8-27 NPT

Code	Pressure Range
101	100 kPa, 1 mA
201	200 kPa, 1 mA
701	700 kPa, 1 mA
015	15 psi (1 bar), 10 V
030	30 psi (2.07 bar), 10 V
050	50 psi (3.44 bar), 10 V
100	100 psi (6.89 bar), 10 V
200	200 psi (14 bar), 10 V
300	300 psi (21 bar), 10 V

Code	Description
A	Absolute
G	Gauge

Code	Tolerance
H	Constant Current Supply (1.0 mA)
V	Constant Voltage Supply (10 VDC)

NPI-19 - ___ - ___ - ___ - ___ **Typical model number**

920-312A